



X-Plain™

What is Prostate Cancer?

Reference Summary

Cancer of the prostate is the most common form of cancer that affects men.

About 240,000 American men are diagnosed with prostate cancer every year.

The earlier a prostate cancer is found, the better are the chances of a successful treatment.

This reference summary will help you understand what is prostate cancer and how it can be diagnosed and treated.

Cancer And Its Causes

The body is made up of very small cells.

Normal cells in the body grow and die in a controlled way.

Sometimes cells keep dividing and growing without normal controls, causing an abnormal growth called a tumor.

If the tumor does not invade nearby tissues and body parts, it is called a benign tumor, or non-cancerous growth. Benign tumors are rarely life threatening.

If the tumor invades and destroys nearby cells, it is called a malignant tumor or cancer.

Cancer may threaten a person's life.

Cancerous cells may also spread to different parts of the body through blood vessels and lymph channels.

Lymph is a nearly clear fluid produced by the body that drains waste from cells. It travels through special vessels and bean-shaped structures called lymph nodes.

Cancer treatments are used to kill or control abnormally growing, cancerous cells.

Cancers in the body are given names depending on where the cancer originates.

Cancer that begins in the lungs will always be called a lung cancer, even if it has spread to another place such as the liver, bones, or brain.

Although doctors can locate where a cancer begins, the cause of a cancer in a patient cannot usually be identified. Cells contain hereditary or genetic materials called chromosomes. This genetic material controls the growth of the cell. Cancer always arises from changes that occur in these ge-

netic materials. When the genetic material in a cell becomes abnormal, it can lose its ability to control its growth. These sudden changes in genetic material can occur for a variety of reasons. This tendency may be inherited from parents.

Changes in genetic materials may also occur because of exposure to infections, drugs, tobacco, chemicals, or other factors.

Prostate Anatomy

The prostate is one of the male sex glands. It is located just below the bladder, the organ that collects and empties urine. It is also located in front of the rectum, the lower part of the intestine, where solid wastes are stored.

The prostate is about the size of a walnut. It surrounds the urethra, the tube that carries urine from the bladder to the outside of the body.

The prostate makes fluid that makes up most of the semen, the white fluid in which sperms travel.

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The prostate is affected by male sex hormones. Hormones are substances that control functions of the body. The most important male hormone is testosterone, which is produced by the testicles.

Prostate Cancer – Diagnosis

Often early cancer of the prostate has no symptoms.

To examine the prostate, usually your doctor will insert a gloved finger into the rectum to feel for lumps in the prostate. This is called digital rectal examination. Sometimes the tumor may be too small for the doctor to feel during a rectal examination.

As the cancer grows, it squeezes the urethra. Urine passes through the urethra when a man empties his bladder. That is why the first symptom of prostate cancer is usually difficulty urinating. Note, however, that other diseases can also cause difficulty in urination.

The speed at which cancer grows varies from person to person.

The earlier the prostate cancer is detected, the better are the chances of a successful treatment.

That is why doctors recommend a blood test called a PSA test to help find prostate cancer during its early stages.

PSA (Prostatic Specific Antigen) is a substance in the blood that may indicate prostate cancer. If the amount of PSA in the blood is higher than normal or if the doctor feels a lump during a rectal examination, the doctor will consider further prostate cancer testing. High levels of PSA do NOT always mean that the patient has prostate cancer; there are other causes for elevated PSA levels. Some tests help the doctor see the prostate and other parts of the body where the cancer may spread. Examples of such tests are

Ultrasound,

X-ray,

IVP,

Bone scan, and

MRI.

Your doctor may take cells from your prostate and look at them under the microscope. Your doctor will usually do this by putting a needle into the prostate to remove some cells. This is called fine needle biopsy.

Once cancer of the prostate has been diagnosed, more tests will be done to find out if cancer cells have spread from the prostate to tissues surrounding it or to other parts of the body. This is called staging. To plan treatment, your doctor needs to know the stage of the cancer.

Staging

If the patient has cancer, it is important to determine

How much the cancer has grown and

If the cancer has spread to other parts of the body.

These two pieces of information help your doctor determine the stage of a cancer.

Knowing the stage of the cancer helps the doctor determine the best treatment options.

A pathologist carefully analyzes cells and tissue taken from the prostate cancer. A pathologist is a doctor who examines a sample of your cancer under the microscope.

Doctors group prostate cancer into four stages. The higher the stage, the more advanced is the cancer.

Stage 1 or A

The prostate cancer at this stage cannot be felt and causes no symptoms. The cancer is only in the prostate and usually is found accidentally when surgery is done for other reasons. It is too small to be felt during a rectal examination.

Stage 2 or B

The tumor is still located within the prostate but is large enough to be felt during rectal examination. There are often no symptoms.

Stage 3 or C

Cancer cells have spread outside the prostate to surround-

ing tissues. Difficulty in urinating is common.

Stage 4 or D

Cancer cells have spread to lymph nodes near or far from the prostate or to organs and tissues far away from the prostate, such as a bone, the liver, or lungs. The patient may experience difficulty urinating, bone pain, weight loss, and tiredness.

Treatment Options

Treatment of cancer of the prostate depends on the stage of the cancer, as well as the patient's age and his overall health.

Your doctor may follow your condition more closely rather than starting treatment immediately. This decision depends on whether you have symptoms, are elderly, have another more serious illness, or have only slightly abnormal tumor cells.

New advances in medical technology and knowledge make it possible to treat all patients who have cancer of the prostate.

Thousands of men with prostate cancer are living longer with less discomfort and fewer treatment side effects.

Four kinds of treatment are commonly used.

Surgery.

Radiation therapy using high dose x-rays or other high-energy rays to kill cancer cells.

Hormonal therapy using hormones to stop cancer cells from growing.

A combination of radiation and hormonal therapy.

Surgery can be used to remove cancer from the prostate and from nearby tissues into which the cancer has spread.

Surgery is generally recommended during the early stages of the cancer. If prostate cancer is found in its early stages, surgery may cure the disease. Several surgical options are available to remove prostate cancer. One procedure involves removing the prostate through the perineum, the area between the scrotum and the anus. This procedure is called radical perineal prostatectomy. The entire prostate and nearby cancerous tissue are removed.

Another radical prostatectomy procedure for removing the prostate cancer and nearby lymph nodes is done through an incision through the lower abdomen. This procedure is called radical retropubic prostatectomy.

Radical prostatectomy is done only if the cancer has NOT spread outside the prostate.

Often before this is done, your doctor will do surgery to take out lymph nodes in the pelvis

to see if they contain cancer.

This is called a pelvic lymph node dissection. If the lymph nodes contain cancer, usually your doctor will not do a prostatectomy and may or may not recommend other therapy at this time.

Another procedure, called transurethral resection of the prostate or TURP, involves removing benign tissue from the prostate by inserting an instrument through the urethra in the penis. Only part of the prostate is removed. This operation is sometimes done to relieve symptoms caused by the tumor before other treatment or for men who cannot have radical prostatectomy because of age or other illnesses. Another procedure, called cryosurgery, involves killing the cancer by freezing.

Radiation therapy is the use of high-energy radiation to kill cancer cells and shrink tumors. Radiation may come from a machine outside the body (external radiation therapy) or from putting materials that produce radiation in the area where the cancer cells are found (internal radiation therapy or brachytherapy).

Because the rays cannot be directed perfectly, they may damage both cancerous and healthy cells nearby.

If the dose of radiation is small and spread over time, the can-

cer cells die while the healthy cells are able to recover and survive.

Radiation therapy usually is given for prostate cancer that has not spread to other parts of the body, such as lungs and bones. It may also help stop the cancer from spreading further.

Radiation therapy may cure the disease if the cancer is in its early stages.

It may also relieve pain if the prostate cancer has spread to the bones.

Hormonal therapy is the use of hormones to stop cancer cells from growing. Male hormones, like testosterone, can help prostate cancer grow. To stop the cancer from growing, the patient is given medication to decrease the amount of male hormones. Examples of such medications are

Female hormone therapy

LHRH therapy

Antiandrogen therapy.

Sometimes an operation to remove the testicles (orchiectomy) is done to stop the testicles from making testosterone, the main male hormone.

Hormone therapy is usually used during advanced stages of cancer when the cancer has spread outside the prostate or to other parts of the body.

It does not cure cancer but can slow its growth, helping extend life and relieve symptoms.

Chemotherapy is the use of toxic drugs to kill cancer cells. Chemotherapy may be taken by pill or may be injected into the body by a needle into a vein or muscle.

With chemotherapy, the drug enters the blood stream, travels through the body, and kills rapidly growing cells, which include cancer cells and healthy cells. To destroy cancer cells without seriously harming healthy ones, the drugs are given in certain dosages over time.

To date, chemotherapy does not work well in many men with prostate cancer. When it is used, chemotherapy is limited to certain advanced stages of prostate cancer in which the cancer has spread to other parts of the body.

After treatment, prostate cancer may come back, or recur.

The treatment option for recurrent prostate cancer depends on several factors such as

The stage of the cancer

What treatment the patient had before, and

The health of the patient.

Summary

Cancer of the prostate is the most common form of cancer that affects men. Regular screening helps detect prostate cancer in its early stages.

If prostate cancer is detected, several treatment options are

available. The treatment depends on the stage of the cancer as well as the age and medical condition of the patient.